

Study Guide (revised)
EEB 4724- Exam 2
Fall, 2011

Phylum Platyhelminthes: general features of the phylum (e.g. acoelomate, etc.); configuration of digestive system; phylogenetic relationships among major groups.

Basal platyhelminth orders (Polycladida, Tricladida, Dalyellida, Temnocephalida): synapomorphies, example taxon for each group, host associations/life-style, distinctive features. What are the "Turbellaria"? Are they monophyletic?

Subphylum Neodermata: synapomorphy; what is a neodermis? How does it differ from an epidermis? Be able to illustrate its basic components. Be able to reconstruct phylogenetic relationships among neodermatan classes and subclasses. With respect to life cycles, know stage infective to each host.

Class Trematoda: position in platyhelminth phylogenetic tree; component groups.

Subclass Aspidogastrea: general morphology, host associations, larval stage.

Subclass Digenea: general features, synapomorphies; reproductive strategies for minimizing impact of hazards associated with transfer between hosts; generalized digenean life-cycle: larval forms, sequence and general host associations; polyembryony -what is it? Where does it occur in digenean life-cycle?

Liver flukes: know 4 species (given that site in host of *F. buski* is exception); for each species know: general geographic distribution, whether zoonotic infection, hosts, diseases caused, pathogenicity, epidemiology, diagnosis of infection in definitive host, understand paths various worms take to and from liver in definitive host; life-cycle of *F. hepatica*; life-cycle of *C. sinensis*. Special behavior of cercariae of *C. sinensis* maximizing chances of encountering 2nd intermediate host; life-cycle of *D. dendriticum* and its unusual features (terrestrial; modification of host behavior, etc.).

Lung flukes: *P. westermani*: life-cycle, typical definitive hosts (including reservoir hosts), diagnosis, diseases caused, general geographic distribution, epidemiology, pathogenicity associated with human infections, as an example of a zoonotic infection. *Nanophyetes salmincola*: as vector of *Neorickettsia helminthoeca* in dogs, disease caused, epidemiology, consequences of infection in dogs.

Blood flukes: dioecy and physical relationship between males and females; gynecophoral canal-what is it? 3 primary species of *Schistosoma* in humans; for each know: general geographic distribution, site in definitive host, diagnosis, zoonosis or not, life-cycle (of *S. mansoni*), details of pathogenicity of infection (i.e., of 3 stages of disease); granuloma/pseudotubercle formation; mechanism by which eggs move to exit portal; 4 strategies of control of Schistosomiasis and associated problems; bird schistosomes: habitats, disease caused and its explanation.

Gut flukes: *Leucochloridium*: unusual features of life-cycle (terrestrial, metacercariae in sporocysts, sporocyst "behavior" for enhancing transmission).

Class Monogenea: general features (monoxenous, etc.), synapomorphy, sources of food, host associations, typical sites in/on hosts, specificity (host and site); factors that may account for general absence from aquatic birds (and mammals?), larval form; 2 superorders: their general features (especially haptor morphology).

Superorder Monopisthocotylea: *D. vastator*: life-cycle, pathogenicity and its circumstances and reasons for economic importance; *Gyrodactylus* spp. and sequential polyembryony.

Superorder Polyopisthocotylea: *Polystoma* spp. - unusual features of life-cycle, small vs large adults and their sites occupied in/on the host, association with growth and reproductive hormones of host; internal rather than external migration of relative in spadefoot toads in Arizona.

Class Cestoda: (i.e., tapeworms), synapomorphies, structure and 2 potential functions of microtriches; monozoic vs. polyzoic cestodes (differences?); distinguish proglottized from non-proglottized cestodes; what is a proglottid? general features and general hosts of Gyrocotylidae, Amphiliniidae, Eucestoda; basic eucestode morphology (scolex, strobila, immature, mature, and gravid proglottids); apolytic vs. anapolytic tapeworms; generalized aquatic cestode life-cycle (typical number of hosts, etc.); generalized terrestrial cestode life-cycle (typical number of hosts, etc.); cestode larvae: hexacanth, oncosphere, coracidium, proceroid, plerocercoid, cysticeroid, cysticercus (various types: simple, coenerus, hydatid) -what are they? In what groups are they found? 7 orders of eucestodes covered, host associations, specialized structures of the scolex (suckers, bothria, bothriidea, tentacles, etc).

2 orders of eucestodes in humans:

Order Diphyllbothriidae:? general features (e.g., aquatic life-cycles); life-cycle of *Diphyllbothrium latum*, how humans acquire infection, symptoms, diagnosis, pathogenicity; paratenic host: criteria?

Order Cyclophyllidae: general features, life-cycles terrestrial, etc.; 2 basic larval types: cysticercoids, cysticerci- basic morphology and host associations of each; 3 species of importance to humans; *T. solium* vs. *T. saginata* (similarities? differences? hosts, diagnostic features, size, pathogenicity, life-cycles, larval stages, etc.); life-cycle *T. solium*; humans as intermediate and definitive hosts; in each case: disease, symptoms, pathogenicity, treatment, diagnosis; cysticerci and biological warfare; *Echinococcus granulosus*: structure of hydatid cyst, epidemiology (urban and sylvatic forms); role humans play in life-cycle, pathology associated with hydatid infection, treatment (phases in removal of hydatids), consequences of hydatid cysts bursting.